

REMARKS

Claims 1-5, 7-12, 14 and 21-28, all the claims pending in the application, stand rejected on prior art grounds. Applicants respectfully traverse these objections/rejections based on the following discussion.

I. The Prior Art Rejections

Claims 1-5, 7-12, 14 and 21-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Yeo et al., hereinafter Yeo in view of Ge et al., hereinafter "Ge", and/or Wang et al., hereinafter "Wang". Applicants respectfully traverse this rejection because the references do not teach or suggest the inventive structure illustrated, for example, in Figure 2G where one portion of the substrate includes a layer having a first crystalline orientation 16 and a layer having a second crystalline orientation 12, with the other portion of the substrate including a layer having the second crystalline orientation 12 and a third layer 26 contacting the second layer 12 and also having the second crystalline orientation. Ge and Wang are utilized merely to demonstrate a teaching of straining layers and only Yeo is relied upon for teaching regions having different crystalline orientations.

Yeo discloses that the transistors can be formed on islands that have different crystalline orientations 110, 112, but Yeo does not teach or suggest a structure where one portion of the substrate includes a layer having a first crystalline orientation and a layer having a second crystalline orientation, with the other portion of the substrate including a layer having the second crystalline orientation and a third layer 26 contacting the second layer 12 and also having the second crystalline orientation. Therefore, it is Applicants position that the prior art of record does not teach or suggest the claimed invention.

More specifically, independent claims 1, 8, and 23 similarly define that the "first portions of said substrate comprise a first layer at a top of said first portions, said first layer having said first type of crystalline orientation and a second layer at a bottom of said first portions, said

second layer having said second type of crystalline orientation, and wherein said second portions of said substrate comprise said second layer at a bottom of said second portions and a third layer at a top of said second portions, said third layer having said second type of crystalline orientation and said third layer contacting said second layer."

Applicants submit that the structures defined by independent claims 1, 8, and 23 are fully disclosed in specification and illustrated in the drawings. For example, as shown in Figure 2G, one portion of the substrate includes a layer having a first crystalline orientation 16 and a layer having a second crystalline orientation 12, with the other portion of the substrate including a layer having the second crystalline orientation 12, and a third layer 26 contacting the second layer 12 and also having the second crystalline orientation. This structure is available because, as shown in Figure 2A, the invention begins with a laminated substrate that is eventually etched (Figure 2C) down to the layer of second crystalline orientation 12 to allow additional material 26 of the second crystalline orientation to be formed (Figure 2D). The resulting structure shown in Figure 2G, includes one portion of the substrate having a first crystalline orientation layer 16 and a layer having a second crystalline orientation 12, with the other portion of the substrate including a layer having the second crystalline orientation 12, and a third layer 26 contacting the second layer 12 and also having the second crystalline orientation.

To the contrary, Yeo forms islands on the substrate that have different crystalline orientations. All of the structures that utilize different crystalline orientation within Yeo are built on top of the substrate and do not comprise layers within the substrate as in the claimed invention. Therefore, the structure according to Yeo requires substantially more complicated and expensive processing than the claimed invention which begins with the laminated structure shown in Applicants Figure 2A. Therefore, the inventive structure is superior when compared to the structure disclosed in Yeo (whether combined with Ge and/or Wang or not) because the inventive structure can be produced with a substantially simplified, less expensive, and higher yielding manufacturing process. Further, the claimed structure produces a number of other advantages, such as reduced height, reduced weight and size, reduced amount of materials, etc. when compared to the silicon island structures disclosed in Yeo.

Therefore, as shown above, it is Applicants position that the prior art of record does not teach or suggest a structure where the "first portions of said substrate comprise a first layer at a top of said first portions, said first layer having said first type of crystalline orientation and a second layer at a bottom of said first portions, said second layer having said second type of crystalline orientation, and wherein said second portions of said substrate comprise said second layer at a bottom of said second portions and a third layer at a top of said second portions, said third layer having said second type of crystalline orientation and said third layer contacting said second layer" as defined by independent claims 1 and 23 and similarly defined by independent claim 8. Thus, it is Applicants position that independent claims 1, 8, and 23 are patentable over the prior art of record. Further, independent claims 2-5, 7, 9-12, 14, 21-22, and 24-28 are similarly patentable, not only by virtue of their dependency from a patentable independent claim, but also by virtue of the additional features of the invention they define. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

II. Conclusion

The specification has been amended to correct typographical errors herein. In view of the foregoing, Applicants submit that claims 1-5, 7-12, 14 and 21-28, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

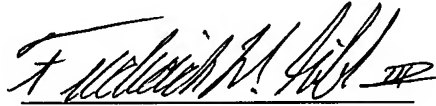
Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

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Please charge any deficiencies and credit any overpayments to Attorney's Deposit
Account Number 09-0456.

Respectfully submitted,

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